INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

S-E-C-R-E-T

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COUNTRY Hungary

SUBJECT Tisza River Project and the Eastern Main Canal

REPORT

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report concerning the Tisza River project and the Eastern Main Canal in Hungary. The report consists of the following:

1. A three-page descriptive account of the two projects, giving the status of construction and the nature and purpose of the work being done. It also lists the various attachments, which are designated as Appendices "A" through "G".

2. Appendix "A", a map showing the route of the Eastern Main Canal. (One sheet.)

3. Appendix "B", a sectional drawing and plan, with legend, of the Tiszalök barrage. (Two pages.)

4. Appendix "C", a cross-section drawing of the construction of the Eastern Main Canal. (One page, together with Appendix "D".)

5. Appendix "D", a sketch, with explanatory notes, of one of the bridges over the Eastern Main Canal. (One page, together with Appendix "C".)

6. Appendix "E", a sketch, with legend, of the junction of the Western Main Canal and the Eastern Main Canal. (Two pages.)

7. Appendix "F", a plan sketch and sectional drawing of the irrigation sluices on the Eastern Main Canal. (Two pages.)

8. Appendix "G", plan sketches, with legend, of the box turnouts on the Eastern Main Canal which are intended to conduct the water of natural streams under the canal. (Two pages.)

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HUNGARY

Economic

The River TISZA Project and the Eastern Main Canal

I. The River Tisza Project.

1. The objects of this project are :

a) To make the River Tisza navigable as far as ZAHONY.

b) To irrigate part of the HORTOBAGY

c) To utilise the River Tisza for water storage.

d) To use the energy generated by the differences in water level at the TISZALOK dam for the generation of electricity.

2. To achieve these objects the project plans locks and dams at TISZALOK, SZOLNOK and SZEGED. Of these the one at TISZALOK only has been completed. This already allows modified river traffic to ZAHONY, and the storage of considerable quantities of water, which in the rainy season, supplies power to four turbines.

3. At Appendix "A" is a map showing the route of the Eastern Main Canal. The parishes of BUD-SZT-MIHALY and TISZA-BUD have been amalgamated and re-named TISZA-VASVARI. South east of this place is shown the junction of the Western Main Canal flowing in a Southwesterly direction to NAGYKATI-POCSAJTURNA. Off the map to the south the Eastern Main Canal eventually reaches the River BERETTYO passing through HAJDUSZOBOSZLO.

3. The TISZALOK BARAGE.

A sectional drawing and a plan are attached as Appendix "B".

The barage has five supporting piers, carrying four sluice gates. Of these one is built into the longtitudinal wall of the navigation lock, another into the side wall of the power plant. The lock gates are raised in channels built into the piers at an angle to the vertical. The electrically operated lifting mechanism is built into the hollow piers, and the latter contain various small rooms. The piers are connected by a steel footbridge above floodwater level, and this can be reached from

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either side by a small stairway. The navigation lock is an integral part of the dam, and can accommodate two 70 meter barges and their tug at the same time. A "Progress Office" has been established at the dam, and this decides on the priorities for the use of the available water at different times, according to the three requirements, viz: navigation, irrigation, electric power.

II The Eastern Main Canal

5. Construction

Appendix "C" is a cross-section of the construction of the canal. The water flows by gravity. It can carry 50-60 cubic meters of water per second. Horses or tractors are used for towing the barges. The sides of the canal are of earth except at ports etc. where they are of quarried stone.

6. Bridges.

Where the canal cuts a main road, the road has been deviated to cross the canal at right angles. The bridges are marked on the map by a number in a red circle (see appendix "A"). Bridges are on the "LANGER" suspension type. The span is 60 metres. There is a clearance of 2 metres above the top of unloaded vessels. There is no information on railway bridges, except their position which is shown on the map. Appendix "D" shows a sketch of one of the bridges, and a plan of the abuttment and tow-path.

7. Junction of the Western Main Canal and Eastern Main Canal

Appendix "E" is a plan of this junction. The whole area is closed to the public and is policed by River Guards in their black uniform with carbine, pistol and rubber truncheon.

8. Irrigation Sluices.

Appendix "F" is a plan and section of the Irrigation sluices on the Eastern Main canal. The position of these sluices is shown on the map at Appendix "A". There are eight of them, and they are numbered on the map in a blue circle. Nos; 8 is off the bottom of the map. Of these eight sluices, six are the same and are as shown at Appendix "F". Sluices Nos: 5 and 7 are longer. Though the canals leading from these

are essentially for irrigation, small barges can pass through the sluices at time when the water level is the same. A considerable amount of local traffic is carried in these small barges on the irrigation canals.

9. Box Turnouts.

Appendix "G" shows plans of the box-turnouts on the Eastern main Canal. These box turnouts are for the purpose of conducting the water of natural streams under the Eastern Main Canal. The stream water flows through a double pipe so that the water can be shut off in either section for repairs. Closure of each section is effected by the "double guides" shown as No: 5 on the plan. These guides are 40 cms apart and are 8 cms thick. When closure is required wooden batons are placed in the guides and the space between filled with impermeable clay. There is also a hand-operated winch for raising and lowering sluice plates.

LEGEND TO APPENDIX "B"

I	Navigation Lock
II	Movable Lock Gate in Dam
III	Power Plant
①	Floodwater Dam
②	(Bulkhead) Horizontal Cover, also Entrance Road
③	Wedged Stone - Lining.
④	Longitudinal Lock Wall
⑤	Double winged. Swinging Lock Gate
⑥	Pier for support of Lifting Gate & Stowage of Lifting Gear
⑦	Solid Steel Plate Construction - Foot & Freight Bridge
⑧	Lock (Lifting) Gate in closed (lower) position.
⑨ - - -	Minimum Water Level of Lower Lock
⑩	Lifting Gate in open (upper) position
⑪ ——	Maximum Water Level of upper Lock
⑫	Power Plant
⑬	Outflow Opening of Turbine Water
⑭	Separating & supporting Piers
⑮	Breakwater (To moderate water energy)
⑯	Breakwater, as above, to save soil from excessive erosion
⑰	Breakwater (behind Power Station)
⑱	Breakwater (behind Navigation Lock)
⟶	Direction of Flow
	Ground Level
	Lifting Gates
	Embankment
a & b	Horizontal Covers, Plates & Catwalks made of re-inforced concrete.

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Appendix B

FIGURE 1

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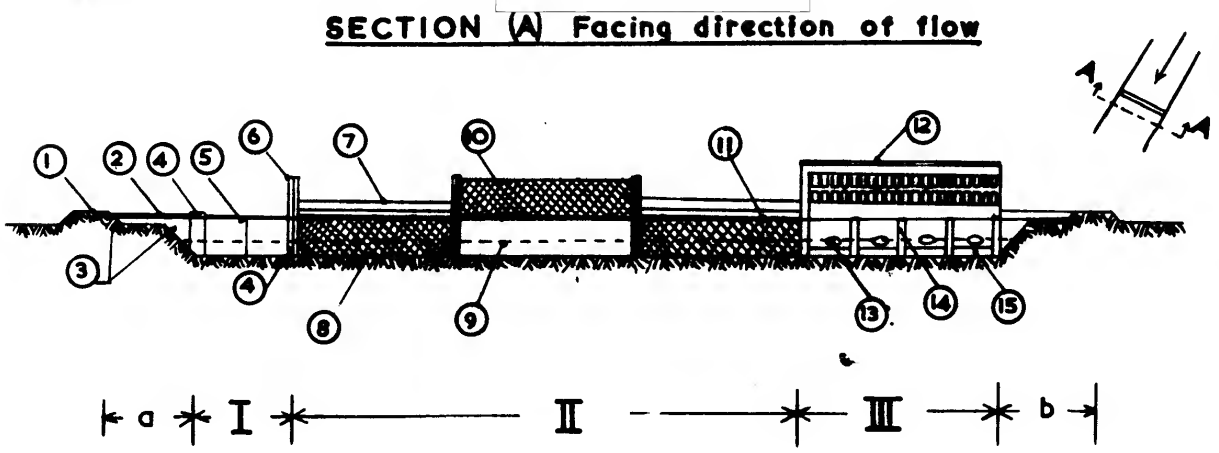
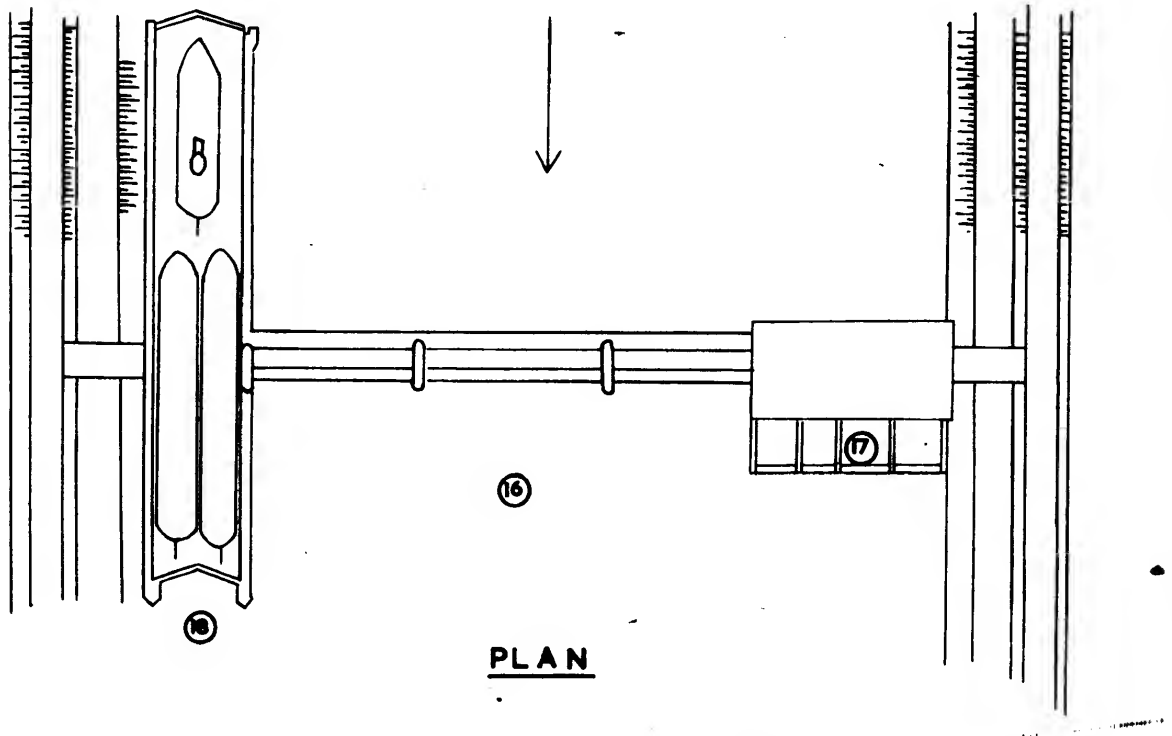
SECTION (A) Facing direction of flow



THREE MAIN SECTIONS Theoretical layout & functional sketch

FIGURE 2.



PLAN

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Appendix "C"

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3 Fig. 1323 Crossection

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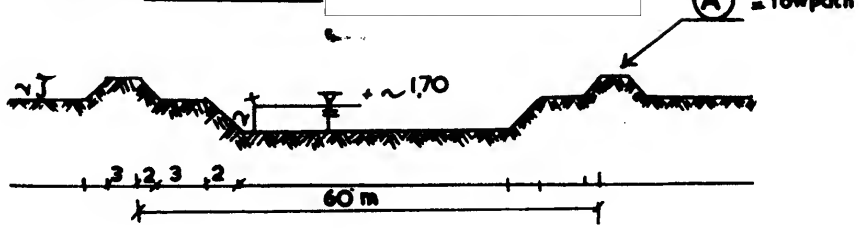
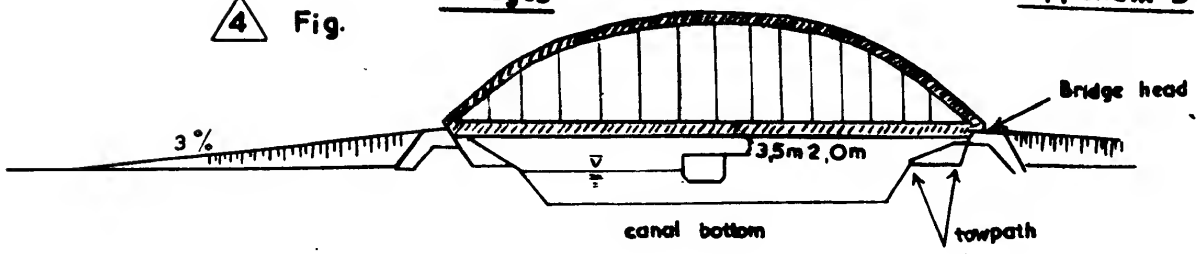
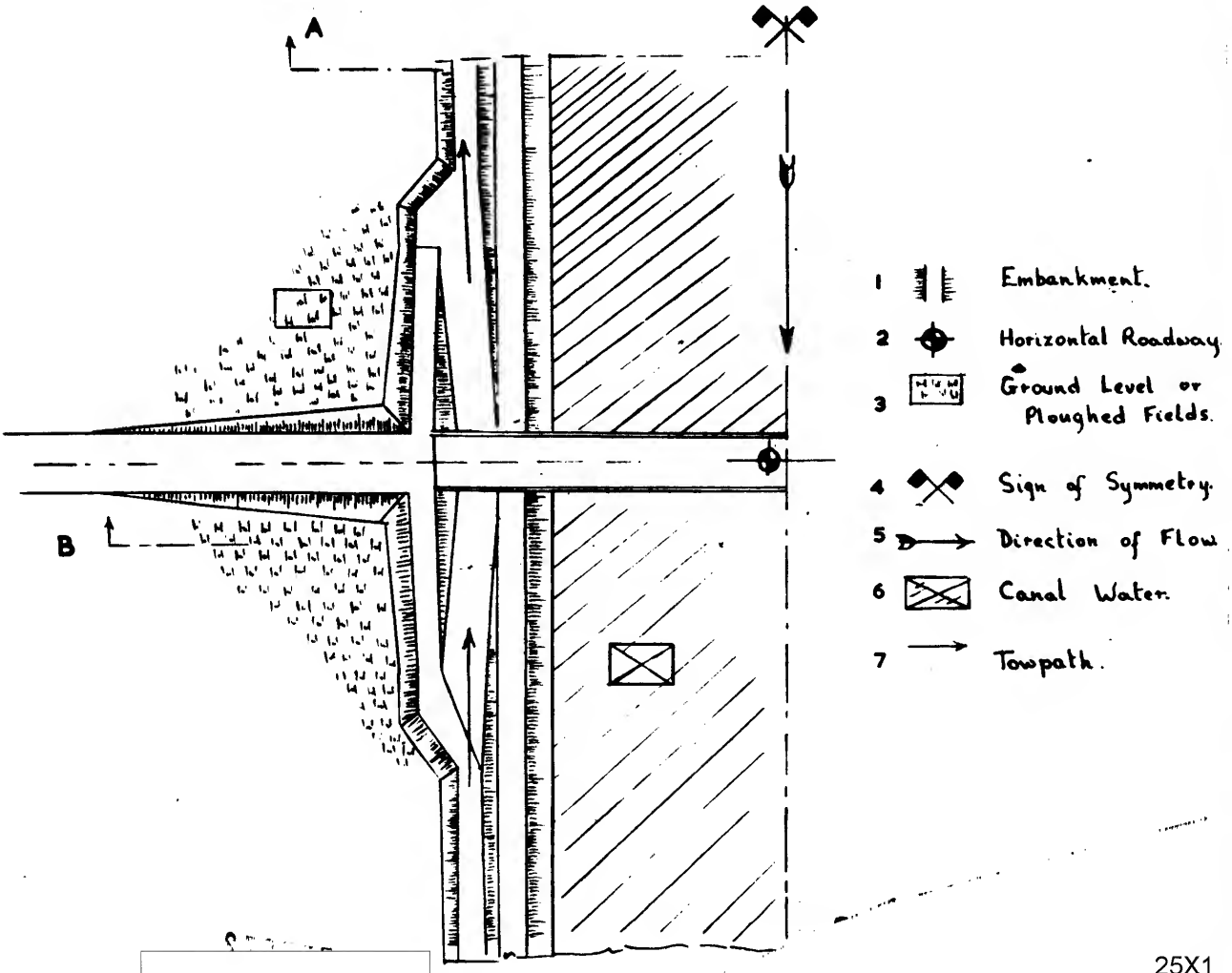


Appendix "D"

4 Fig. Bridges



5 Fig.



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LEGEND TO APPENDIX 'E'

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(1)		Direction of Flow from River Tisz
(II)		Direction of Flow of Western Main Canal
(III)		Direction of Flow of Eastern Main Canal
(10)		Towpath approx 3.0m. wide
(11)		Berm approx 2.0m. wide
(12)		Embankment inclined at ration of 1:1.5
(13)		Canal Bottom
(14)		Ramp, 1:33 Gradient
(15)	r.c.	Breakwater behind – Navigation Lock
(16)	s	Rear Lock Gate
(17)	r.c.	Navigation Lock Bottom
(18)	r.c.	Navigation Lock Side Wall
(19)	r.c.	Navigation Lock Breakwater
(20)	r.c.	Rear Bulkhead
(21)	r.c.	Front Bulkhead
(22)	s.	Front Lock Gate
(23)		Pier containing Sluicegate and Supporting Bridge
(24)	s.	Sluice or Lock Gate or Plate
(25)	s.	Steel Bridge 3m wide
(26)	r.c.	U-Shaped Supporting Wall – as seen from above in plan.
(27)	r.c.	U-Shaped Supporting Wall – " " " " " "
(28)		Pier as in 23 above
(29)	s.	2 Sluice Gates
(30)	s.	Steel Bridge
(31)	r.c.	Rounded Edge of Earth Wedge
(32)	s.	Building for Operating Crew
(33)	r.c.	Ground Level
(34)	r.c.	Resting Platform at a higher Level
(35)		Ramp as in 14 onto Lower Level
(36)		Footpath
(37)		Point of intersection of Theoretical Axes

s = steel

r.c = reinforced concrete

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Appendix E

JUNCTION OF EASTERN & WESTERN MAIN CANALS

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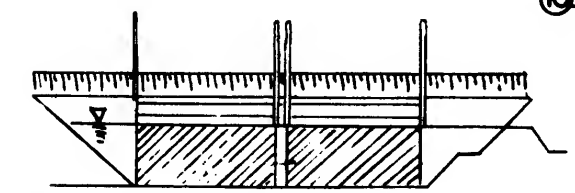
FIGURE 6



SECTION OF WESTERN CANAL ENTRANCE

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FIGURE 8

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LEGEND TO APPENDIX "F"

①		Axis of Eastern Main Canal
②		Axis of Irrigation Canal
③		Grass Embankment at the Irrigation Canal
④		Stone Lining
⑤		Canal Bottom
⑥		Grass Embankment at the Eastern Main Canal
⑦		Towpath
⑧		Boundary of Stone
⑨	r.c.	Rear Bulkhead
⑩	r.c.	Front Bulkhead
⑪	r.c.	Bridge Roadway
⑫		Place for Foot Traffic & Lifting Machinery Operator
⑬	s.	Lock Plate or Gate
⑭		Terminal Re-inforcing Stone Wall to prevent erosion.
⑮		Boundary of Project
⑯	s.	Lock Plate Guides
⑰		Ramp 3% - Gradient onto Towpath
⑱		Water Level
⑲		Canal Bottom
⑳	s.	Railing
㉑		Stone Lining
㉒	r.c.	Bulkhead
㉓	s	Sluice Plate or Gate
㉔	r.c.	Bridge Pier
㉕		Foundations of Project
㉖		Section of Irrigation Canal
㉗		Section of Eastern Main Canal
㉘		Embankment (Level of Towpath)
㉙		Ground Level
㉚		Berm.

s. = steel
r.c. = reinforced concrete

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Appendix "F"

FIGURE 9.

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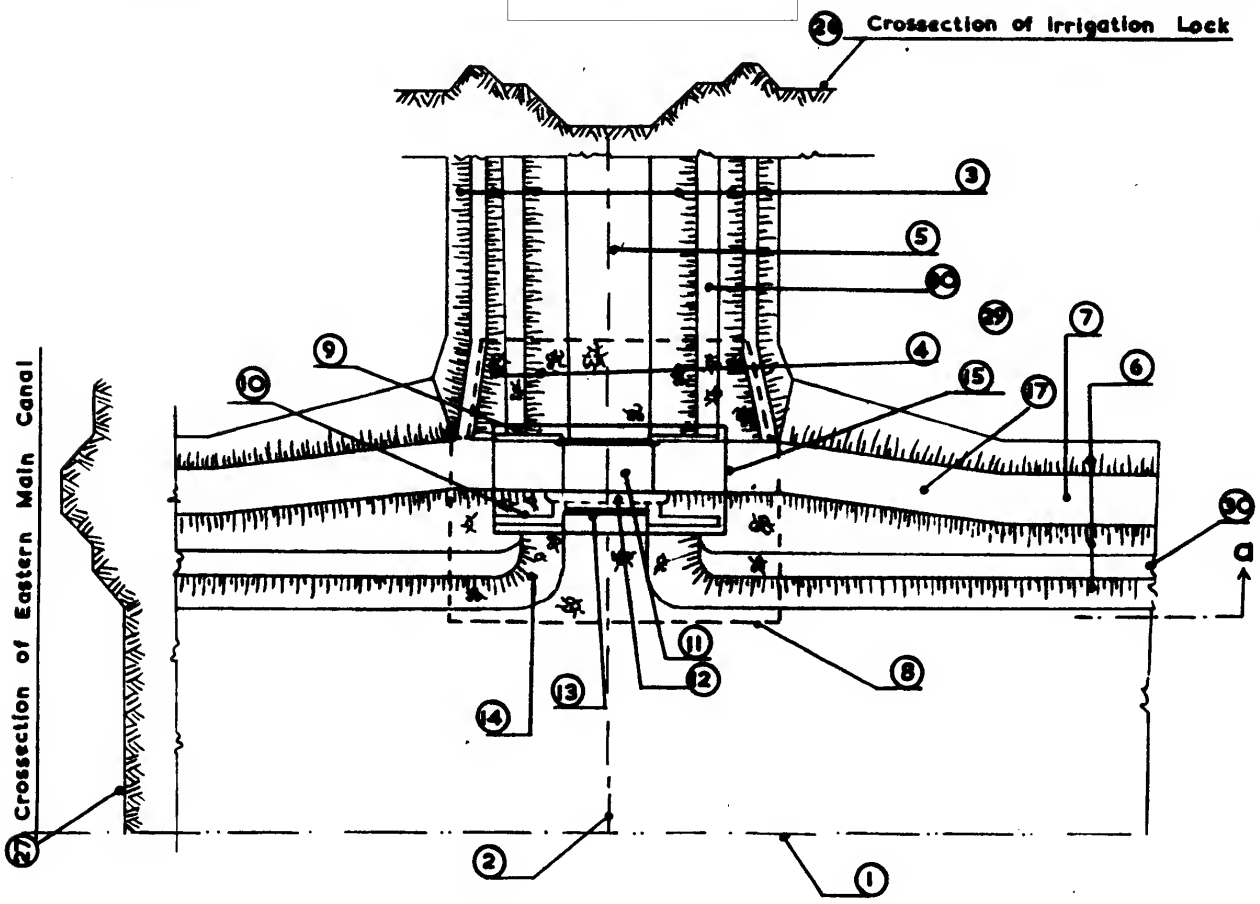
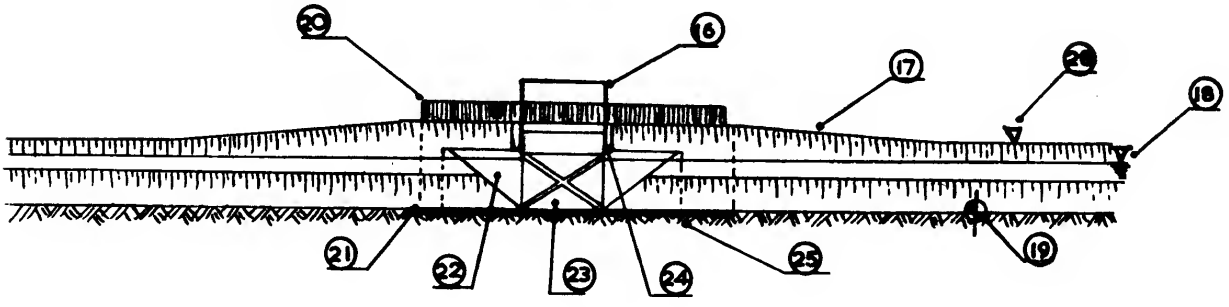


PLAN

FIGURE 10.

SECTION



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LEGEND TO APPENDIX "G"

①		Stone lining
②	w.	Wooden Bulkhead to reduce seepage
③	r.c.	Anchor Plate
④	r.c.	Junction Wall
⑤		Double Guides
⑥	r.c.	Balcony
⑦	r.c.	Box Turnout
⑧	▽	Original Ground Line
⑨		Water Level
⑩	⊕	Canal Bottom
⑪		Berm
⑫		Towpath
⑬	✦	Bottom of crossed water flow
⑭		Side Wall of Box Turnout
⑮		Separating Wall
⑯	r.c.	Bottom of Shaft
⑰	r.c.	Separating Wall of Double Box Turnout
⑱	— · — · —	Axis of Eastern Main Canal
⑲	— · — · —	Axis of crossed water flow
⑳		Guide for permanent Lock
㉑	■	Hand-operated Winch
㉒		Bottom of Eastern Main Canal
㉓		Original Ground Level

r.c. = reinforced concrete

w. = wood

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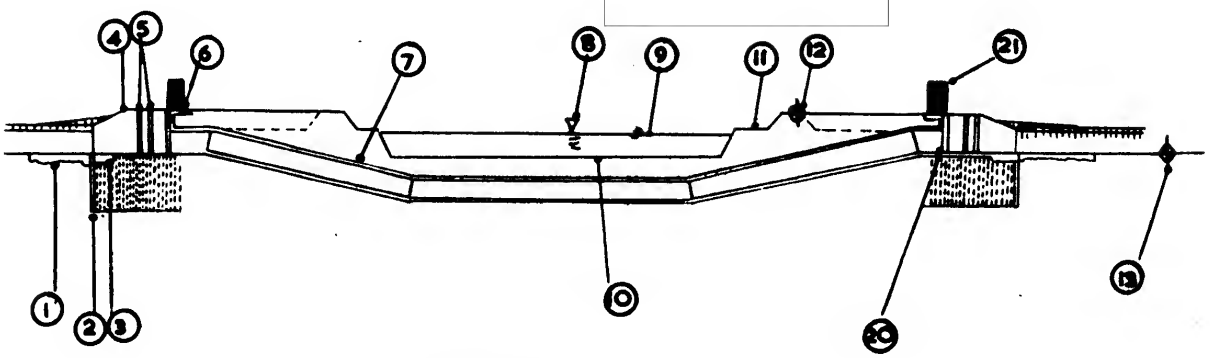
Appendix G

FIGURE 11



CROSSECTION

FIGURE 12.

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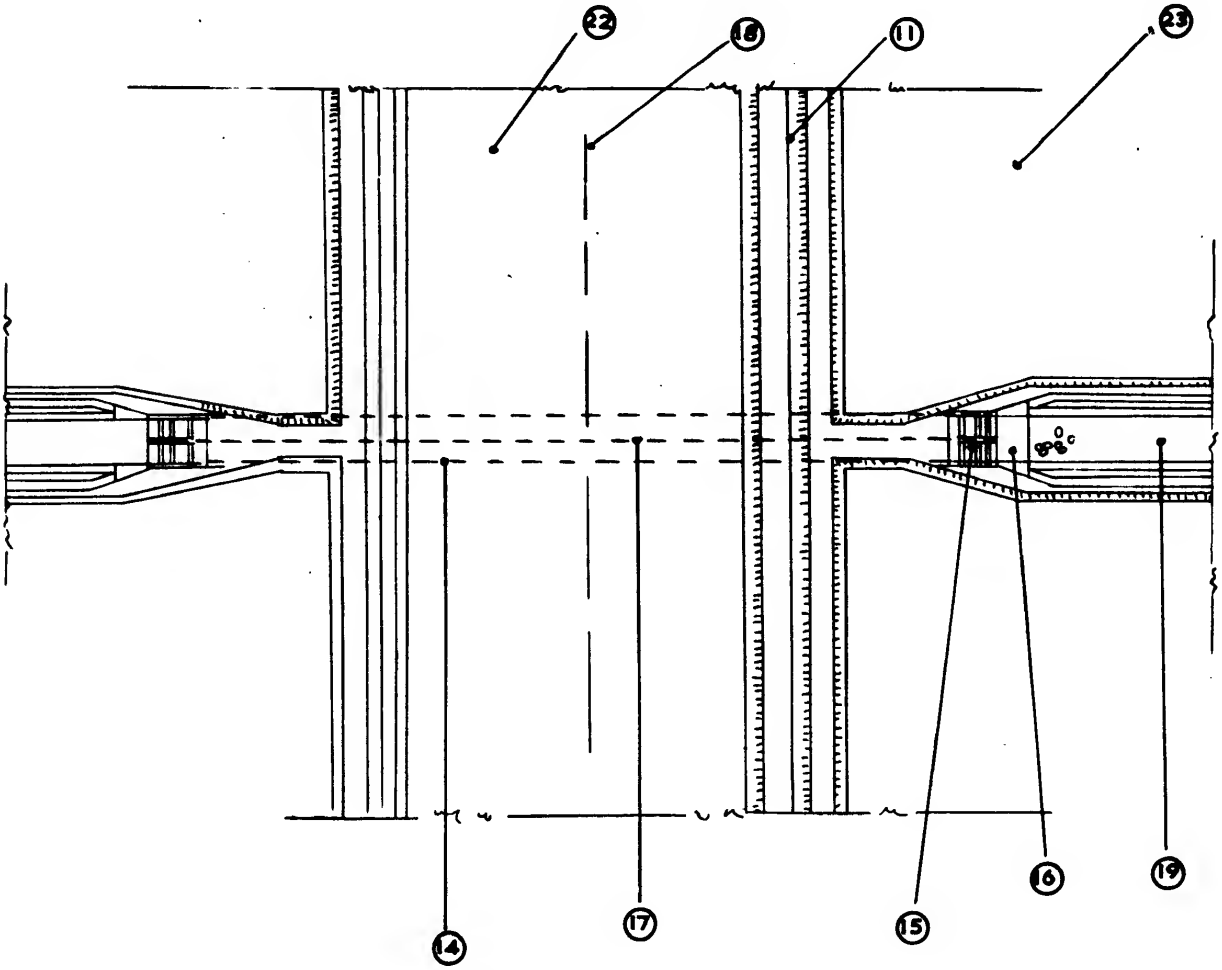

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Appendix A.

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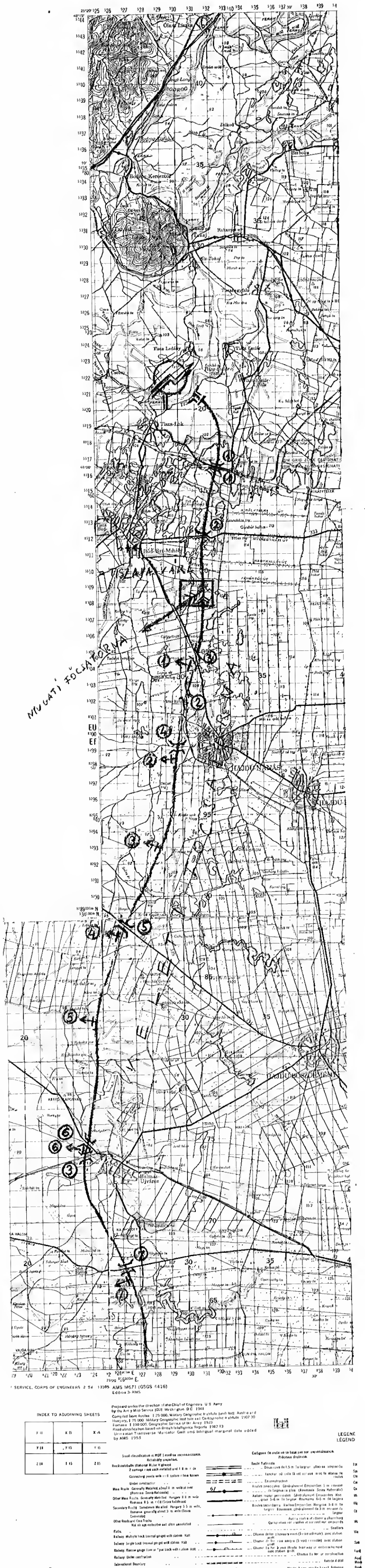

TISZA FÜRED, HUNGARY